

Appl. No. 09/683,993
Amdt. dated 11/17/2005
Reply to Office Action of 08/19/2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended):

1 A device comprising:

2 a port to receive one or more data streams, each data stream including one or more data
3 frames;

4 a task scheduler coupled to the port, the task scheduler to generate a task identifier for
5 every data frame received;

6 a first queue coupled to the task scheduler to hold task identifiers of a first priority type;

7 a second queue coupled to the task scheduler to hold task identifiers of a second priority
8 type, the second priority type different than the first priority type;

9 a switch coupled to the first and second queues, the switch configured to retrieve task
10 identifiers from the first queue and the second queue in a fair manner; and

11 a third queue coupled to the switch, the third queue to hold a plurality of task identifiers
12 placed in the third queue by the switch and provide the task identifiers to a processing
13 unit in the order task identifiers were placed in the third queue by the ~~switch~~-switch;

14 wherein the task router is configured to monitor the first queue for an overflow condition
15 and, if an overflow condition is detected, reassign data frame priority types from the first
16 priority type to the second priority type to prevent overflow of the first queue.

2. (previously presented):

1 The device of claim 1 further comprising:

2 a classifier communicatively coupled to the port to assign one of a plurality of priority
3 types to every data frame received, the plurality of priority types including the first
4 priority type and the second priority type.

3. (previously presented):

1 The device of claim 1 further comprising:

2 a look-up table communicatively coupled to the task scheduler and to the port, the look-
3 up table to provide one of the first priority type and the second priority type to the task
4 scheduler for every data frame received according to the data stream in which the data
5 frame was included.

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4. (previously presented):

1 The device of claim 3 wherein one of the first priority type and the second priority type is
2 pre-assigned to the data stream.

5. (currently amended):

1 The device of claim 3 wherein the conversions between priority types and data frame types
2 are dynamically ~~configured~~ configured in response to usage of the first and second queues.

6. (original):

1 The device of claim 1 further comprising:
2 a task router coupled to receive task identifiers from the task scheduler and the task
3 identifiers in either the first or second queue.

7. (cancelled)

8. (currently amended):

1 The device of claim 1 wherein the switch is configured to retrieve task identifiers from both
2 the first and second queues in a task retrieval cycle in which at least one task identifier is
3 retrieved from each of the first and second queues such that space in the third queue is
4 allotted equally according to processing time restrictions, fair and weighted manner
5 according to priority types of the task identifiers.

9. (currently amended):

1 The device of ~~claim 8~~ claim 1 wherein the switch is configured to retrieve task identifiers
2 with a higher the first priority type until a cumulative processing time requirement for the
3 retrieved task identifiers with the first priority type is substantially equal to a processing time
4 requirement for the are weighted more heavily than task identifiers with a lower the second
5 priority type, and then to retrieve a task identifier with the second priority type.

10. (original):

1 The device of claim 1 wherein the third queue is a shared execution queue from which one or
2 more processing units retrieve task identifiers to process.

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11. (currently amended):

1 A method comprising:

2 receiving one or more data streams, each data stream including one or more data frames
3 of one or more data frame types;
4 determining a task priority level for each data frame received;
5 routing each data frame to one of one or more storage queues based on the task priority
6 level of each data frame; and
7 retrieving the data frames from the one or more storage queues during a task retrieval
8 cycle according to a fair and weighted processing scheme based on task priority level;
9 level; and
10 reassigning one or more data frame types to different priority levels to prevent further
11 data frames from being stored in a first storage queue if an overflow condition is detected
12 in the first storage queue.

12. (currently amended):

1 The method of claim 11 wherein the task priority level is determined from one of frame size,
2 echo canceller tail length, codec type, and frame processing requirements. ~~the data frame~~
3 ~~type.~~

13. (original):

1 The method of claim 11 wherein the task priority level corresponding to a particular data
2 frame type is pre-configured.

14. (original):

1 The method of claim 11 wherein each storage queue stores data frames of a different task
2 priority level than the other storage queues.

15. (currently amended):

1 The method of claim 11 wherein each data frame type corresponds to a particular processing
2 time requirements. ~~requirement for data frames of the data frame type.~~

16. (original):

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- 1 The method of claim 15 wherein, according to the weighted processing scheme, data frames
2 of approximately equal total processing time restrictions are retrieved from each storage
3 queue in a task retrieval cycle.

17. (cancelled)

18. (previously presented):

- 1 The method of claim 11 further comprising:
2 placing a plurality of the retrieved data frames into an execution queue to be processed.

19. (currently amended):

- 1 A method comprising:
2 receiving one or more data streams, each data stream including one or more data frames
3 of one or more data frame types;
4 determining a task priority level for each data frame received;
5 assigning a unique task identifier to each received data frame;
6 storing each task identifier to one of multiple storage queues according to the task priority
7 level of the corresponding data frame; and
8 retrieving task identifiers from the one or more storage queues during a task retrieval
9 cycle according to a weighted processing scheme based on task priority levels; ~~levels; and~~
10 reassigning one or more data frame types to different priority levels to prevent further
11 data frames from being stored in a first storage queue if an overflow condition is detected
12 in the first storage queue.

20. (currently amended):

- 1 The method of claim 19 wherein the task priority level is determined from one of frame size,
2 echo canceller tail length, codec type, and frame processing requirements. ~~the data frame~~
3 ~~type.~~

21. (currently amended):

- 1 The method of claim 19 wherein each data frame type corresponds to a particular processing
2 time requirements. ~~requirement for data frames of the data frame type.~~

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22. (original):

1 The method of claim 21 wherein, according to the weighted processing scheme, task
2 identifiers corresponding to data frames of approximately equal total processing time
3 requirements are retrieved from each storage queue in a task retrieval cycle.
4

23. (previously presented):

1 The method of claim 19 further comprising:
2 placing a plurality of the retrieved task identifiers into an execution queue to be processed.

24. (currently amended):

1 A machine-readable medium having one or more instructions for scheduling processing tasks,
2 which when executed by a processor, causes the processor to perform operations comprising:
3 receiving one or more data streams, each data stream including one or more data frames
4 of one or more data frame types;
5 determining the task priority level for each of the data frames received;
6 routing each data frame to one of one or more storage queues based on the task priority
7 level of each data frame; and
8 retrieving the data frames from the one or more storage queues during a task retrieval
9 cycle according to a fair and weighted processing scheme based on task priority levels.
10 reassigning one or more data frame types to different priority levels to prevent further
11 data frames from being stored in a first storage queue if an overflow condition is detected
12 in the first storage queue.

25. (currently amended):

1 The machine-readable medium of claim 24 wherein the task priority level is determined from
2 one of frame size, echo canceller tail length, codec type, and frame processing requirements,
3 the data frame type.

26. (original):

1 The machine-readable medium of claim 24 wherein each storage queue stores data frames of
2 a different task priority level than the other storage queues.

27. (currently amended):

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- 1 The machine-readable medium of claim 24 wherein each data frame type corresponds to a
2 particular processing time ~~requirements~~. requirement for data frames of the data frame type.

28. (original):

- 1 The machine-readable medium of claim 27 wherein, according to the weighted processing
2 scheme, data frames of approximately equal total processing time are retrieved from each
3 storage queue in a task retrieval cycle.

29. (cancelled)

30. (previously presented):

- 1 The machine-readable medium of claim 24 further comprising:
2 placing a plurality of the retrieved data frames into an execution queue to be processed.